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DIVISION OF
OIL GAS & MINING

Mr Rody Cox
Bureau of Land Management
15E 500N
Fillmore, Utah 84631

JUMBO MINING CO.
6305 Fern Spring Cove
Austin, Texas 78730

DOGM
MINERALS PROGRAM
FILE COPY

WFB. ACTION INITIAL

Warm Springs A.M.

Rody

Sept. 11, 1991

File # 846310941191

Operations Division

RE: Additional information
requested in letter 4-17-91
for our new heap

Dear Mr. Cox

The following is the additional information required for our new heap application.

BASELINE HYDROLOGIC DATA

This data stating the quality of ground water, storm data and intensities, hydrogeologic and hydrologic information have already been submitted.

PROPOSED LINER DESIGN

The engineering design and specifications on the new heap liner was completed by CBC Enviro of Salt Lake and a copy of the report has already been submitted to the BLM.

CBC Enviro will be on site as consultants during the construction of the new pad to assure that the exact specifications of the design will be followed. The BLM, DOGM and the Dept. of Health will be notified prior to construction and will be invited to the mine to inspect the installation of the new liner.

LEAK DETECTION SYSTEM

A detailed description of the leak detection system has been submitted in the CBC Enviro report. During operation the system will be checked daily and logged in a book. The outer edge of the liner will be 17 feet from any leach ore and 44 feet from any sprinkler which should contain any oversprays which should occur on windy days. All leach operators will be notified to shut down the outer lines on windy days.

SPILL CONTINGENCY PLAN

The leak detection system is designed to pinpoint the section of heap which is leaking. If a leach operator locates a leak

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in the system, he will notify his supervisor and the following plan will be followed:

1. The section of the heap which contains the leak will be shut off.
2. A sample of the leak water will be collected and analyzed to see if it is process water or rain water which may have enter the leak detection system.
3. If the leak is process water, then the section of the heap which is leaking will either (a) remain off permanently or (b) have the rock remove and the leak repaired.
4. The monitoring wells will be checked to see if the leak penetrated the clay base.

If the leak did not penetrate the base, leaching will continue. If the leach water is detected in the monitoring holes, then tracers (e.g. potassium) will be added to the barren solution in order to check the leak plume in the perched water table. After the section of the heap is repaired or remains permanently shut off, pumping of the monitoring wells will start until no tracer element is detected in the wells. The pad is designed to have zero discharge and should contain any leaks within the system, therefore, the use of tracers should not be required.

If a leak should occur, the following regulatory agencies will be notified:

1. Department of Health--Bureau of Water Pollution Control (Mark Novak)
2. Department of Oil, Gas & Mining (Wayne Hedberg)
3. Bureau of Land Management

NEUTRALIZATION PLAN

In general, neutralization and closure for the new heap will consist of the following:

1. Heaps will be rinsed with recycled fresh water until the effluent is below the protection limits for CN and other possible contaminants. There will be

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alternating periods of rinsing and resting in order to take advantage of natural degradation. Rinse rates will vary between high volume (to assure complete saturation and less possibility of short circuiting) and low volume to assure that the effluent from clay zones (slow diffusion of CN of saturated solids) is not being greatly diluted with effluent from high permeability zones. During the later part of the resting period, the draindown will be sampled (draindown water would be from areas having slow diffusion rates). If high CN occurs in the effluent, then neutralization chemicals (e.g. HCL, peroxide, etc.) will be added.

2. Any rock which is to be recontoured off the pad liner well be sampled and evaluated by the Meteoric Water Mobility Test (see exhibit A for procedure). The results of the test will determine if additional rinsing and/or neutralization is needed.
3. Top soiling for reclamation will provide a partial capping and diversion of meteoric waters.

MONITORING PLAN

All leak detection systems and monitoring wells will be inspected regularly during closure and neutralization.

Once Jumbo shows that the rinsing effluent (especially during high rinsing rate applications which stimulates the 100yr rain) and the Meteoric Water Mobility test results are under the protection limits, then reclamation will commence with no fear of contamination to ground water. There should be no post-reclamation monitoring if the neutralization of the heap is preformed correctly.

ADDITIONAL INFORMATION BEING SUBMITTED IN OUR APPLICATION

Jumbo's original permit for a new heap did not include the clay borrow pit data or the perched water table drain trench which the Dept. of Health is requiring us to put in for monitoring and containing the contaminated perched water.

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CLAY BORROW PIT

Approximately 30,000 cubic yards will be mined from a borrow pit to be used for the base and secondary liner of the new pad. The borrow pit lies in the NE1/4 SW1/4 of sec. 13 T15S R11W SLM on unpatented claims YC128 (UMC # 260789) and YC130 (UMC # 260791) owned by Jumbo Mining. See Map A for location of pit.

The pit will be 500 feet long, 150 feet wide in the middle and 12 feet deep (see Map B for design). All soil and overburden (1,663 cubic yards) will be stockpiled and eventually spread evenly back into the pit after completion of clay removal. After backfilling the pit, the area will be ripped and seeded. Total area to be disturbed (including stockpile area) will be 1.452 acres.

Access roads between the clay pit and new pad area will be county maintained roads (see Map A) and only minor upkeep will be needed. Water and/or MgCl will be used during hauling for dust control.

PERCHED WATER TABLE DRAIN TRENCH

The Bureau of Water Pollution Control (Dept. of Health) has requested Jumbo to submit a plan for monitoring and containment of the contamination in the perched water table. They suggested that a trench may be built for the water to drain into. Jumbo has submitted a plan for a trench to be emplaced just to the southwest of the new pad area (see Map C).

The initial design is a trench 150 feet long, 12 feet wide at the bottom and 20 feet deep. The trench may be enlarged if needed. Water will be allowed to drain into the trench and then pump into our solution ponds.

Soil will be removed (134 cubic yards) and stockpiled. All rock mined from the trench will be backfilled into the trench after it is no longer needed for a collection drain. Soil will be placed on top, ripped and reseeded.

Total acres to be disturbed will 0.165 acres.

Sincerely,


Dave Hartshorn--Drum Mine

EXHIBIT A
METEORIC WATER MOBILITY TEST

Collect a representative sample of the material. The minimum sample size for this procedure is 5 kilograms. If the material to be sampled has particle sizes greater than 5 centimeters, sufficient material must be classified to provide 5 kilograms of sample with maximum particle size less than 5 centimeters. This classified sample is placed in an extraction device which allows the sample to be continuously wetted by circulation of the synthetic meteoric water (lixiviant). The volume of the synthetic meteoric water must be equal in weight to the weight of the classified sample plus the additional volume necessary to saturate the sample. The lixiviant is circulated, agitated, or mixed for 24 hours, continuously wetting the full surface of the sample. For this procedure the lixiviant is laboratory grade water whose hydrogen ion activity (pH) has been adjusted to between pH 5.5 and 6.0 with reagent grade nitric acid before charging it to the extraction device. No further adjustment of the pH during extraction is required. One hour after ceasing to circulate, a sample of the lixiviant is decanted and prepared for analysis. Analysis shall be performed for the constituents listed at the end of this procedure. Elements for which a standard has been established shall have a lower level of quantification equal to or less than that standard.

The extraction device can be a packed column with small recycle reservoir or bottle roll or large barrel fitted with internal circulation/agitation or equivalent.

The information to be recorded and reported is:

1. The procedure used to collect a representative sample.
2. The adjusted pH of original lixiviant;

3. The final pH of fluid after mixing;
4. Percentage of sample passing 200 mesh;
5. Total weight of solid sample;
6. Moisture required to saturate sample;
7. Time of contact in extraction device;
8. Synopsis of the technique and equipment used to leach sample, i.e., column, batch, etc.; and
9. Results of the analysis of the lixiviant after ending the extraction.

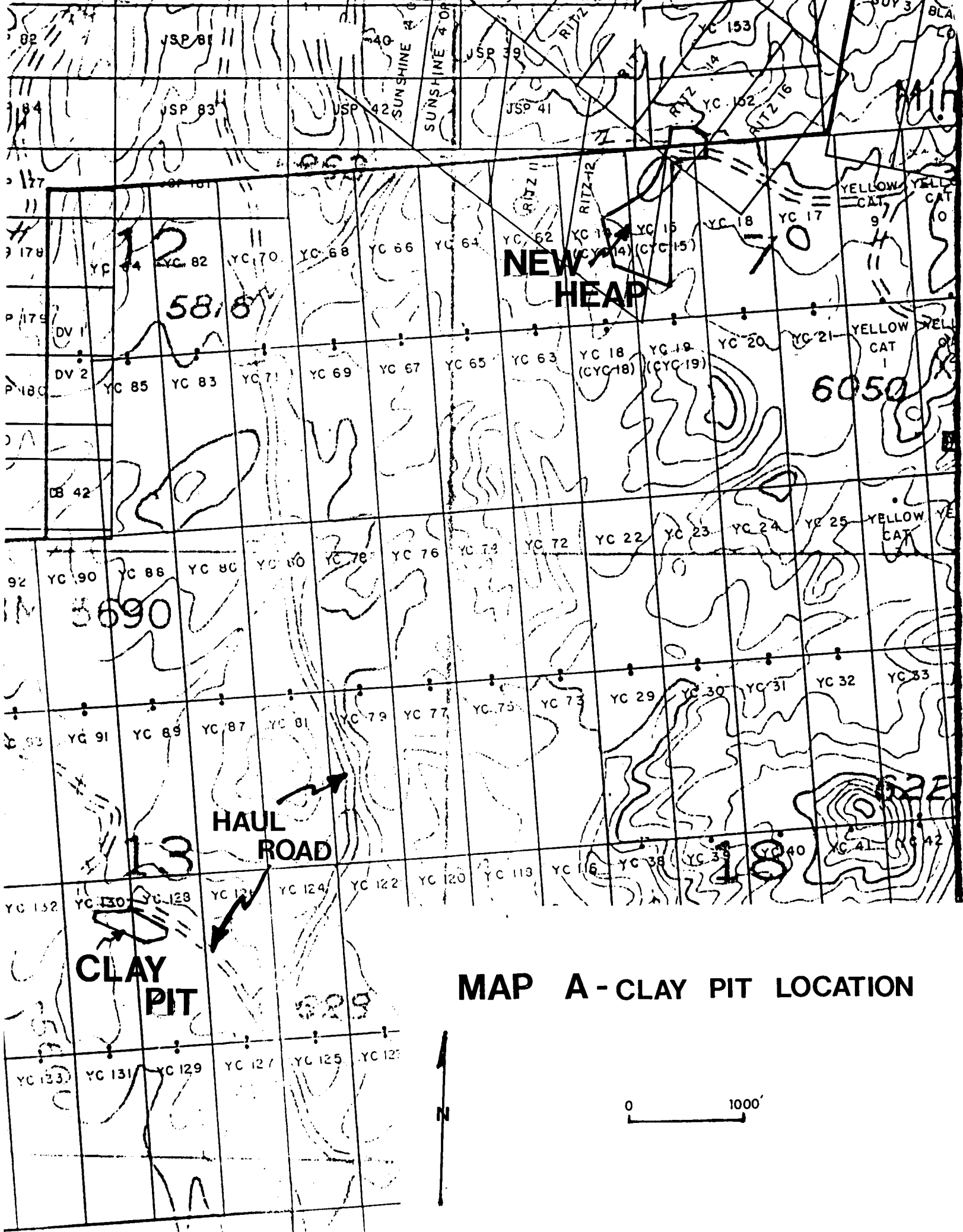
Alkalinity
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Cadmium
Calcium
Chloride
Chromium
Cobalt
Copper
Fluoride

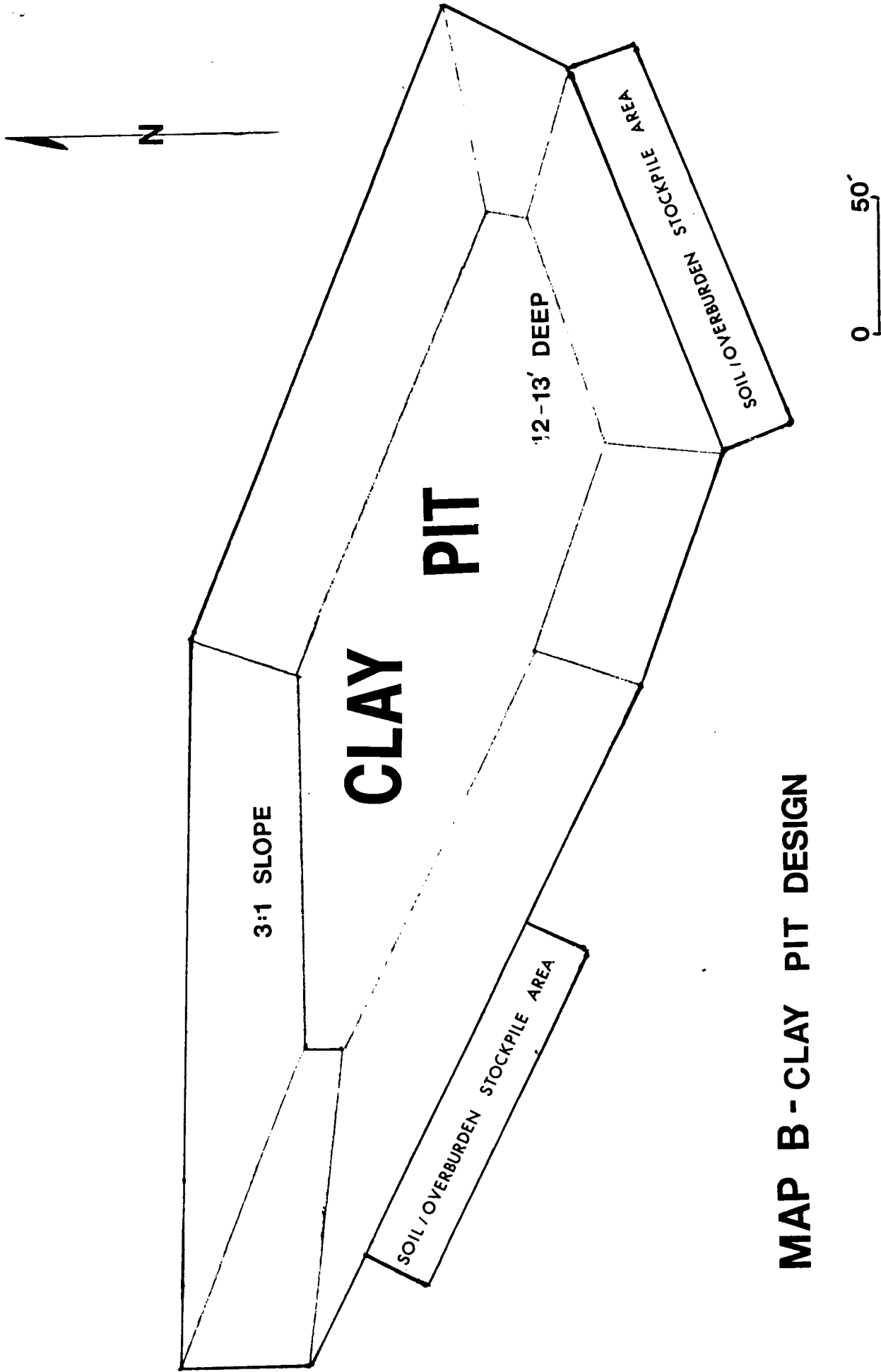
Gallium
Iron
Lead
Lithium
Magnesium
Manganese
Mercury
Molybdenum
Nickel
Nitrate
pH
Phosphorus
Potassium

Scandium
Selenium
Silver
Sodium
Strontium
Sulfate
Thallium
Tin
Titanium
Total Dissolved Solid
Vanadium
*WAD CN
Zinc

* When Appropriate

HvD/tjd/sld:56
revised 9/19/90





MAP B - CLAY PIT DESIGN

